

Attorney Docket No. JP919990202

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application

Applicant(s): Y. Tahara et al.
Docket No.: JP919990202
Serial No.: 09/656,964
Filing Date: September 7, 2000
Group: 2655
Examiner: Michael N. Opsasnick

I hereby certify that this paper is being deposited on this date with the U.S. Postal Service as first class mail addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Signature: *Risa L. Thelges* Date: May 25, 2004

Title: Methods and Apparatus for Recognized Word
Registration in Accordance With Speech
Recognition

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SECOND SUPPLEMENTAL APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Second Supplemental Appeal Brief is submitted in response to the Office Action dated February 25, 2004 in the above-referenced application, in which the Examiner reopened prosecution in response to the Supplemental Appeal Brief filed November 26, 2003.

Appellants have submitted concurrently herewith a response to the Office Action, requesting reinstatement of the appeal pursuant to 37 C.F.R. §1.193(b)(2).

REAL PARTY IN INTEREST

The present application is assigned to International Business Machines Corporation, as evidenced by an assignment recorded December 4, 2000 in the U.S. Patent and Trademark Office at Reel 011310, Frame 0622. The assignee, International Business Machines Corporation, is the real party in interest.

RELATED APPEALS AND INTERFERENCES

There are no known related appeals and interferences.

STATUS OF CLAIMS

Claims 1-12 are pending in the present application. Claims 4, 8 and 12 are allowable, and claims 1-3, 5-7 and 9-11 stand rejected under 35 U.S.C. §103(a). Claims 1-3, 5-7 and 9-11 are appealed.

STATUS OF AMENDMENTS

There has been no amendment filed subsequent to the final rejection. However, a Response to Final Office Action was filed on February 27, 2003, an Appeal Brief was filed on June 5, 2003, and a Supplemental Appeal Brief was filed on November 26, 2003.

SUMMARY OF INVENTION

The present invention provides techniques that maintain speech recognition accuracy when a new word is being registered in a speech recognition dictionary (Specification, page 3, lines 1-3).

In one aspect of the invention, a technique for performing recognized word registration may comprise the following steps/operations. First, a word inscription specified by a user is obtained. A word dictionary is searched to obtain a sounds-like spelling corresponding to the word inscription. A pronunciation dictionary is searched to obtain a base form corresponding to the sounds-like spelling that has been obtained. Then, the base form is registered in a speech recognition dictionary (Specification, page 3, line 23, through page 4, line 3).

In another aspect of the invention, techniques for performing recognized word registration may comprise the following steps/operations. First, a word inscription is specified by a user. A word dictionary is searched to obtain a plurality of sounds-like spellings that correspond to said word inscription and sounds-like spelling scores that correspond to the sounds-like spellings. The plurality of sounds-like spellings are displayed for the user. The sounds-like spelling that is selected by the user is obtained from among the plurality of sounds-like spellings. Then, a pronunciation dictionary

is searched to obtain a base form and a pronunciation score corresponding to the sounds-like spelling that has been obtained. A determination is made as to whether the pronunciation score exceeds a predetermined threshold value. The base form is then registered in a speech recognition dictionary when the pronunciation score exceeds the predetermined threshold value (Specification, page 4, lines 4-19).

In a further aspect of the invention, techniques for performing recognized word registration may comprise the following steps/operations. First, it is determined whether first voice information obtained for a user's voice matches a predetermined condition. A speech recognition wizard panel that includes a new word input field and a sounds-like spelling input field is displayed on a display screen, when the voice information matches said predetermined condition. A new word and a sounds-like spelling that are entered in the speech recognition wizard panel are obtained. Second voice information based on the user's pronunciation provided for the new word and the sounds-like spelling is obtained. The second voice information, the new word and the sounds-like spelling are employed to specifically describe a base form. Then, the base form is added to a speech recognition dictionary (Specification, page 4, line 20, through page 5, line 7).

Accordingly, by way of example, the following steps describe an illustrative embodiment of the present invention. A sounds-like spelling group is generated in which scores are used for word descriptions. A user selects a correct sounds-like spelling from a generated sounds-like spelling group, and a group of base forms is generated with scores provided for the selected sounds-like spelling and the reading of the word. In this fashion, a base form having a score that exceeds a reference value is registered without a voice recording being required. During the speech recognition process as performed by a user, when a predetermined error state is detected, e.g., when the number of recognition errors exceeds N, a panel is output requesting that the user register the inscription, the sounds-like spelling and the pronunciation inscription for the word and that the user record a corresponding pronunciation. In accordance with the pronunciation provided by the user, the base form is obtained and is re-registered in the speech recognition dictionary (Specification, page 3, lines 13-22).

FIGs. 1 and 2 conceptually depict recognized word registration processing techniques, according to an embodiment of the invention (Specification, page 13, lines 13-26). FIGs. 5 and 6 respectively depict a word dictionary and a pronunciation dictionary, according to embodiments of the invention (Specification, page 16, line 14, through page 17, line 5). An embodiment of a recognized word registration methodology of the invention is shown in FIG. 7, with reference to user interfaces in FIGs. 8, 9 and 10 (Specification, page 17, line 11, through page 19, line 9). An embodiment of a speech recognition methodology of the invention is shown in FIG. 11, with reference to a user interface in FIG. 12 (Specification, page 19, line 11, through page 20, line 15).

ISSUE PRESENTED FOR REVIEW

Whether claims 1-3, 5-7 and 9-11 are properly rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,208,897 to Hutchins (hereinafter “Hutchins”), in view of U.S. Patent Application Publication No. 2003/0229497 to Wilson et al. (hereinafter “Wilson”) and IBM Technical Disclosure Bulletin, Vol. 35, Issue 1a, p. 59 (hereinafter “IBM TDB”).

GROUPING OF CLAIMS

Claims 1-3, 5-7 and 9-11 stand or fall together.

ARGUMENT

Appellants incorporate by reference herein the disclosure of all previous responses filed in the present application, namely: an Amendment and Response to Office Action dated September 18, 2002; a Response to Final Office Action dated February 27, 2003; an Appeal Brief dated June 5, 2003; and a Supplemental Appeal Brief dated November 26, 2003.

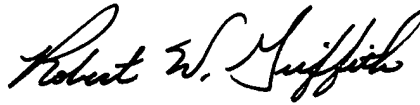
With regard to the issue of whether claims 1-3, 5-7 and 9-11 are unpatentable under 35 U.S.C. §103(a) over Hutchins in view of Wilson and IBM TDB, Appellants respectfully assert that claims 1-3, 5-7 and 9-11 are not properly rejected under 35 U.S.C. §103(a).

Appellants submit that Wilson, which is used in combination with Hutchins and IBM TDB, is not prior art. Wilson has a filing date of December 11, 2003 and is a continuation-in-part of an

application filed on April 21, 2000. No evidence has been provided indicating that the portions of Wilson relied upon by the Examiner are entitled to receive the benefit of the earlier filing date. Further, although the present application has a U.S. filing date of a September 7, 2000, it has claimed foreign priority benefits under 35 U.S.C. § 119 based on Japanese Application No. 11-257429, filed on September 10, 1999. This foreign priority was acknowledged by the Examiner in an Office Action dated June 18, 2002. Therefore, the effective filing date of the present invention is September 10, 1999, before the earliest possible effective filing date of Wilson (April 20, 2000), which precludes Wilson as a prior art reference.

For at least the reason given above, Appellants respectfully request withdrawal of the §103(a) rejection of claims 1-3, 5-7 and 9-11. As such, the application is asserted to be in condition for allowance, and favorable action is respectfully solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Robert W. Griffith". The signature is fluid and cursive, with the first name "Robert" and last name "Griffith" clearly distinguishable.

Date: May 25, 2004

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APPENDIX

1. A recognized word registration method, for a speech recognition apparatus that includes a display screen and a voice input device, comprising the steps of:

- obtaining a word inscription specified by a user;
- searching a word dictionary to obtain a sounds-like spelling corresponding to said word inscription;
- searching a pronunciation dictionary to obtain a base form corresponding to said sounds-like spelling that has been obtained; and
- registering said base form in a speech recognition dictionary.

2. A recognized word registration method, for a speech recognition apparatus that includes a display screen and a voice input device, comprising the steps of:

- obtaining a word inscription specified by a user;
- searching a word dictionary to obtain a plurality of sounds-like spellings that correspond to said word inscription and sounds-like spelling scores that correspond to said sounds-like spellings;
- displaying said plurality of sounds-like spellings for said user;
- obtaining said sounds-like spelling that is selected by said user from among said plurality of sounds-like spellings;
- searching a pronunciation dictionary to obtain a base form and a pronunciation score corresponding to said sounds-like spelling that has been obtained;
- determining whether said pronunciation score exceeds a predetermined threshold value; and
- registering said base form in a speech recognition dictionary when said pronunciation score exceeds said predetermined threshold value.

3. A recognized word registration method, for a speech recognition apparatus that includes a display screen and a voice input device, comprising the steps of:

- determining whether first voice information obtained for a user's voice matches a predetermined condition;

displaying on said display screen, when said voice information matches said predetermined condition, a speech recognition wizard panel that includes a new word input field and a sounds-like spelling input field;

obtaining a new word and a sounds-like spelling that are entered in said speech recognition wizard panel;

obtaining second voice information based on said user's pronunciation provided for said new word and said sounds-like spelling;

employing said second voice information, said new word and said sounds-like spelling to specifically describe a base form; and

adding said base form to a speech recognition dictionary.

5. A speech recognition apparatus, which includes a display screen and a voice input device, comprising:

a recognized word registration unit for obtaining a word inscription specified by a user;

a sounds-like spelling generator for searching a word dictionary to obtain a sounds-like spelling corresponding to said word inscription;

a base form generator for searching a pronunciation dictionary to obtain a base form corresponding to said sounds-like spelling that has been obtained; and

a speech recognition dictionary in which said base form is registered.

6. A speech recognition apparatus, which includes a display screen and a voice input device, comprising:

a recognized word registration unit for obtaining a word inscription specified by a user;

a sounds-like spelling generator for searching a word dictionary to obtain a plurality of sounds-like spellings that correspond to said word inscription and sounds-like spelling scores that correspond to said sounds-like spellings, and for obtaining said sounds-like spelling that is selected by said user from among said plurality of sounds-like spellings on said display screen;

a base form generator for searching a pronunciation dictionary to obtain a base form and a pronunciation score corresponding to said sounds-like spelling that has been obtained; and

a speech recognition dictionary in which said base form is registered when said pronunciation score exceeds a predetermined threshold value.

7. A speech recognition apparatus, which includes a display screen and a voice input device, comprising:

a recognized word registration unit for determining whether first voice information obtained for a user's voice matches a predetermined condition;

a speech recognition wizard for displaying on said display screen, when said voice information matches said predetermined condition, a speech recognition wizard panel that includes a new word input field and a sounds-like spelling input field;

a voice input unit for obtaining second voice information based on said user's pronunciation provided for a new word and a sounds-like spelling that are entered in said speech recognition wizard panel;

a base form generator for employing said second voice information, said new word and said sounds-like spelling to specifically describe a base form; and

a speech recognition dictionary to which said base form is added.

9. A storage medium on which is stored a recognized word registration program that is to be executed by a speech recognition apparatus that includes a display screen and a voice input device, said recognized word registration program comprising:

program code for instructing said speech recognition apparatus to obtain a word inscription specified by a user;

program code for instructing said speech recognition apparatus to search a word dictionary to obtain a sounds-like spelling corresponding to said word inscription;

program code for instructing said speech recognition apparatus to search a pronunciation dictionary to obtain a base form corresponding to said sounds-like spelling that has been obtained; and

program code for instructing said speech recognition apparatus to register said base form in a speech recognition dictionary.

10. A storage medium on which is stored a recognized word registration program that is to be executed by a speech recognition apparatus that includes a display screen and a voice input device, said recognized word registration program comprising:

program code for instructing said speech recognition apparatus to obtain a word inscription specified by a user;

program code for instructing said speech recognition apparatus to search a word dictionary to obtain a plurality of sounds-like spellings that correspond to said word inscription and sounds-like spelling scores that correspond to said sounds-like spellings;

program code for instructing said speech recognition apparatus to display said plurality of sounds-like spellings for said user;

program code for instructing said speech recognition apparatus to obtain said sounds-like spelling that is selected by said user from among said plurality of sounds-like spellings;

program code for instructing said speech recognition apparatus to search a pronunciation dictionary to obtain a base form and a pronunciation score corresponding to said sounds-like spelling that has been obtained;

program code for instructing said speech recognition apparatus to determine whether said pronunciation score exceeds a predetermined threshold value; and

program code for instructing said speech recognition apparatus to register said base form in a speech recognition dictionary when said pronunciation score exceeds said predetermined threshold value.

11. A storage medium on which is stored a speech recognition process program that is to be executed by a speech recognition apparatus that includes a display screen and a voice input device, said speech recognition process program comprising:

program code for instructing said speech recognition apparatus to determine whether first voice information obtained for a user's voice matches a predetermined condition;

program code for instructing said speech recognition apparatus to display on said display screen, when said voice information matches said predetermined condition, a speech recognition wizard panel that includes a new word input field and a sounds-like spelling input field;

program code for instructing said speech recognition apparatus to obtain a new word and a sounds-like spelling that are entered in said speech recognition wizard panel;

program code for instructing said speech recognition apparatus to obtain second voice information based on said user's pronunciation provided for said new word and said sounds-like spelling;

program code for instructing said speech recognition apparatus to employ said second voice information, said new word and said sounds-like spelling to specifically describe a base form; and

program code for instructing said speech recognition apparatus to add said base form to a speech recognition dictionary.